WHAT IS CLAIMED IS:

1. An x-ray exposure method directing an x-ray generated from an x-ray source to illuminate through a mask a resist stacked on a substrate with a lower layer film posed therebetween,

said lower layer film containing an element C, and being composed in such a way that an element absorbing a largest amount of x-rays of elements contained in the lower layer film is the element C, and

when a film thickness of said lower layer film is t (nm), a density of said lower layer film is ρ (g/cm^3), an absorption edge of an element absorbing a largest amount of x-rays of elements contained in said substrate is As (angstrom), a K-shell absorption edge of the element C is As (angstrom), and an absorption edge of an element absorbing a largest amount of x-rays of elements contained in said resist is Ar (angstrom), then a relation: $0.5\times Ar<12.4/((t\times\rho/46)^{(1/1.75)}+12.4/Ac)<Ar$ is satisfied, and

a relation: $12.4/((t\times\rho/46)^{(1/1.75)}+12.4/As) \leq\lambda\leq Ar$ is satisfied by an average wavelength λ (angstrom) of x-rays absorbed in said resist.

2. The x-ray exposure method according to claim 1, wherein the element absorbing a largest amount of x-rays of the elements contained in said resist is an element Cl, and a film thickness of said resist is no more than 100 nm.

3. The x-ray exposure method according to claim 2, wherein the film thickness of said resist is no more than 40 nm.